CLAIMS

1. Recombinant vector for the cloning and/or expression and/or transfer of an exogenous nucleotide sequence characterized in that it consists of any sequence contained in the ClaI-PvuII fragment situated approximately between nucleotides 7702 and 1527 of the sequence given in Figure 1,and comprises the LTR sequence included between nucleotides 7842 and 144, the PBS site starting at nucleotide 145, the packaging sequence included in the sequence of 250 nucleotides following the end of the LTR sequence, the said sequence being capable of controlling the cloning and/or expression and/or transfer of the exogenous sequence whatever its transcriptional orientation with respect to the transcriptional orientation of the virus.

2. Recombinant retroviral vector according to Claim 1, characterized in that it consists of any sequence contained in the ClaI-BamHI fragment situated approximately between nucleotides 7702 and 310 of the sequence shown in Figure 1 for the cloning and/or expression and/or transfer of an exogenous nucleotide sequence, and comprises the 5' LTR and 3' LTR sequences each included between the nucleotides 7842 and 144, as well as the PBS site starting at 145, the packaging sequence comprised in the sequence of 250 nucleotides following the end of the LTR sequence, the said sequence being capable of controlling the cloning and/or expression and/or transfer of the exogenous sequence whatever its transcriptional orientation with respect to the transcriptional orientation of the virus.

3. Recombinant vector according to Claim 1 or Claim 2, characterized in that it comprises in addition all or part of the <u>gag</u> sequence situated between nucleotides 619 and 2245 of the sequence shown in Figure 5, in particular the sequence comprised between nucleotides 619 and 1527 of the sequence shown in Figure 1.

4. Recombinant vector according to Claim 1 or Claim 2, characterized in that it consists of the ClaI-PvuII fragment comprising nucleotides 7702 to 1527 of the sequence shown in Figure 1.

5. Recombinant vector according to any one of the Claims 2 to 4, characterized in that it consists of the ClaI-BamHI fragment comprising nucleotides 7702 to 310 of the sequence shown in Figure 1.

6. Recombinant vector according to any one of the Claims 1 to 5, characterized in that it contains in addition at least one polylinker possessing restriction sites unique with respect to the sites contained in the vector.

7. Recombinant vector according to any one of the Claims 1 to 6, characterized in that it is the plasmid pFOCH29 deposited with the CNCM on 30 June 1993 under No. I-1326.

8. Recombinant vector according to any one of the Claims 1 to 7, characterized in that it comprises in addition a marker gene or part of a marker gene, for example the gene for neomycin resistance.

9. Recombinant vector according to any one of the Claims 1 to 8, characterized in that the U3 region of the LTR is deleted at least in part such that the promoter and/or enhancer contained in U3 is (are) at least in part inactivated or modified.

10. Recombinant vector according to any one of the Claims 1 to 8, characterized in that the U3 region of the LTR is, at least partially, deleted.

11. Recombinant vector according to any one of the Claims 1 to 9, characterized in that the sequence contained in the ClaI-PvuII fragment and/or this fragment, and/or the sequence contained in the ClaI-BamHI fragment and/or this fragment is replaced by a sequence hybridizing under conditions of high stringency with the sequence corresponding to the above-mentioned fragments or is replaced by a sequence having a nucleotide homology of at least 95% with the sequence corresponding to the above-mentioned fragments or of at last 85% with the U3 sequence.

12. Recombinant vector according to any one of the Claims 1 to 11, characterized in that it contains the gag and pol sequences of the FB29 strain.

13. Recombinant vector according to any one of the Claims 1 to 11, characterized in that the exogenous nucleotide sequence is under the control of an exogenous promoter.

14. Recombinant vector according to any one of the Claims 1 to 12, characterized in that it is introduced in a packaging line.

15. Recombinant vector according to any one of the Claims 1 to 13, characterized in that it is packaged in the psi-CRIP line

16. Recombinant vector according to any one of the Claims 1 to 13, characterized in that it is packaged in the psi-CRE line.

17. Recombinant vector according to any one of the Claims 1 to 15, characterized in that it contains several exogenous sequences.

18. Recombinant vector according to any one of the Claims 1 to 16, characterized in that at least one exogenous sequence is inserted in the LTR sequence.

19. Recombinant vector according to any one of the Claims 1 to 17, characterized in that the exogenous sequence is a sequence of therapeutic importance.

20. Recombinant vector according to any one of the Claims 1 to 17, characterized in that the exogenous sequence codes for an antigen or for an antigenic determinant.

21. Recombinant vector according to any one of the Claims 1 to 19, characterized in that the exogenous sequence is a genomic DNA sequence or a cDNA sequence or a RNA sequence.

22. Prokaryotic or eukaryotic recombinant cell, characterized in that it is modifed by a recombinant vector according to any one of the Claims 1 to 20, in particular the cells of species lacking endogenous retroviruses.

23. Recombinant cell according to Claim 21, characterized in that it is a mammalian cell, in particular a human cell.

24. Recombinant cell according to Claims 22, characterized in that it is a hematopoietic cell, in particular a hematopoietic precursor or a lymphomyeloid totipotent stem cell.

25. Recombinant cell according to Claim 22, characterized in that it is a nerve cell, in particular a neuronal or glial cell, a fibroblast, a hepatic, cutaneous or muscle cell, T or B lymphocytes or other mediator of cellular immunity, tumor cells, medullary stroma, endothelial and mesenchymatous cells.

26. Method for the ex vivo or in vivo transfection of eukaryotic cells, characterized in that the eukaryotic cells are infected by a recombinant retroviral vector according to any one of the Claims 1 to 20.

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